State of California
Department of Food and Agriculture
Division of Measurement Standards

Certificate Number: 4766(b)-01

California Type Evaluation Program
Certificate of Approval
For LPG and Vehicle Tank Meters

For:

LPG and VTM Electronic Measuring System

Model: EMH500X Register

Capacity: Maximum Total Volume: 9 999 999
Maximum Totalizer Volume: 99 999 999

Submitted by:

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Standard Features and Options

Register with two liquid crystal displays:

Top display is for indicated volume delivery (gallons or liters)
Bottom display is for preset deliveries (refined petroleum products only)

Integral pulse transmitter comprised of a 25 slot disk with three opto-coupled sensors (150 pulses per revolution, 1000 RPM maximum shaft speed)
Electronic temperature compensation for LPG and refined petroleum products
Model EJB101 power box: 10 to 30 volt DC power supply with intrinsically safe barrier and switches for presets
Battery back-up
Liquip blaster ticket printer or compatible equivalent

Options: Model ERP100 remote pulser
Touch PC accounting system
Heater

Model Description:

EMH500	Blank – No optional heater
EMH500H	Heater option added

This device was evaluated under the California Type Evaluation Program (CTEP) and was found to comply with the applicable technical requirements of California Code of Regulations for "Weighing and Measuring Devices." Evaluation results and device characteristics necessary for inspection and use in commerce are on the following pages.

Effective Date: March 13, 2001

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Mike Cleary, Director

Liquip Sales PTY Ltd.
LPG and VTM Electronic Measuring System
Model: EMH500X Register

Application: The Liquip Model EMH500X measuring system is used to measure refined petroleum products and liquefied petroleum gas when used with approved, compatible vehicle mounted positive displacement meters, and other compatible vehicle mounted equipment. The two stage preset functions are for refined petroleum products only.

Identification: The identification information for the register is located on the front of the register base assembly. The software version 01.01.09 is displayed on power up. Only the first two digits on the left are metrologically significant. The power box, Model EJB101, identification is on top of the housing. The optional Touch PC computer identification information is located on the back of the hand-held device.

Sealing: The Model EMH500X register has provisions for sealing bolts, which connect the register to the temperature compensator or meter base assembly. A wire security seal can be inserted through two taper threaded plugs on the face of the register to prevent undetected calibration and configuration access. The power box and temperature probe have provisions for sealing. The blanking tag on the communication's cable from the register to power box is also sealable. The Touch PC does not require sealing.

A single K-factor or multipoint curve calibration K-factors can be used in this system. Press the register **total** button then press the register **reset** button to print this information.

The meter and product temperature can be viewed by pressing the register **total** button five times.

To print the software setting, press the register **batch** button while the temperature is displayed. The display will display **report no**. Press the register **total** button to change to **report yes**, then press the register **stop/start** button to print the settings.

Operation: The Model EMH500X system pulser sends pulses to the processor board. After the pulses are processed, the information is sent to the display and the optional Touch PC. A ticket can be printed on demand or automatically as per system set-up. Multiple tickets may be printed, but only after the first print. All duplicate tickets will state "duplicate docket not original." To print a ticket from the register indication, press the **reset** button on the register. If the Touch PC is used, press the **print** button on the screen display menu. The Touch PC receipt/invoice format includes (but not limited to):

price per unit	time/date	corrected volume	plant description
total price	delivery number	uncorrected volume	product
total volume	meter number	specific gravity	temperature corrected to 60 EF

Test Conditions: This certificate supersedes Certificate of Approval Number 4766(a)-99 and is issued to include an additional suffix to the existing model number. This added suffix represents a heater option feature. No test was conducted since the heater option is non-metrological. The previous test conditions are listed below for reference.

Certificate of Approval Number 4766(a)-99: This certificate superseded Certificate of Approval Number 4766-98 and was issued to verify the TouchStar Technologies thermal printer cannot change any metrological parameters on the EMH500 register. The Model EMH500 and the TouchStar Technologies thermal printer were submitted for evaluation. A lab evaluation was performed to check compatibility, receipt format, and to verify the printer cannot change any metrological parameters in the EMH500 register.

Liquip Sales PTY Ltd.
LPG and VTM Electronic Measuring System
Model: EMH500X Register

Test Conditions: (Continued)

Certificate of Approval Number 4766-98: The Model EMH500 was submitted for evaluation. The emphasis of the evaluation was on design, performance, ticket format, and interaction with measuring systems. A lab evaluation was performed to check temperature compensation, receipt format, and review menu features for sealing requirements. The Model EMH500 measuring system was then installed on a propane delivery truck and multiple tests were performed at various full, mid-range, and slow flow rates. The same tests were performed after 30 days of use and a throughput of 31 000 gallons of LPG. Similar tests were performed on a vehicle mounted diesel application and with solvent on a test bench.

The results of the evaluations indicate the system complies with applicable requirements.

Type Evaluation Criteria Used: Title 4, California Code of Regulations, 2001 Edition.

Tested By: Dan Reiswig (CA) 4766-98, 4766(a)-99

Reviewed By: Charles Nelson (CA) 4766(b)-01